DOCUMENT RESUME

ED 182 980 FL 010 501

AUTHOR Elerick, Charles
TITLE On the Form of Bilingual Grammars: The Phonological Component.
PUB DATE 79
NOTE 17p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Bilingualism; Cognitive Processes; *Contrastive Linguistics; Deep Structure; English; Etymology; Grammar; *Language Processing; Lexicology; Linguistic Competence; Linguistic Theory; *Phonology; *Spanish; Surface Structure; *Transformation Generative Grammar
IDENTIFIERS *Cognates

ABSTRACT

This research is based on the assumption that a Spanish/English bilingual is aware of the phonological and semantic relatedness of the many hundreds of pairs of transparently cognate items in the two languages. This awareness is linguistically significant in that it is reflected in the internalized grammar of the bilingual. The bilingual speaker of Spanish and English presumably handles pairs such as "biology/biologia" by unconsciously positing a single compromise union lexical representation which is related to the language-specific manifestations by two sets of language specific phonological rules. Some examples of pairs of Spanish/English items and their putative union phonological representation are "soup/sopa": /sOpa/ and "nation/nacion": /nAsyon/. There are 17 rules presented for the English derivation and they include both standard English rules and many special rules that would only be posited for a union grammar. The nine Spanish rules are similarly distributed. Exemplary derivations make clear the effects of the interaction of compromise representations and language specific rules. A discussion of the possible significance of union grammars for understanding bilingualism and some additional areas of needed investigation put the model union grammar into a larger perspective. (Author)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED182980

# ON THE FORM OF BILINGUAL GRAMMARS: THE PHONOLOGICAL COMPONENT

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Richard V. Teschner
U. of Tex. El Paso
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Charles Elerick

University of Texas at El Paso

1979

FL010 001

"On the Form of Bilingual Grammars:
The Phonological Component"

During the past decade in the United States the level of interest in the phenomenon of bilingualism has reached previously unknown levels. This has come about mainly because of the attention that has been turned to the special educational needs of ethnic minorities and the implications of bilingualism for the educational process. Hundreds of scholarly papers dealing with some aspects of bilingualism have been presented at professional meetings or published in journals.

And for the past two decades the main concern of linguists has been to devise and verify as abstractly accurate, formal representations of internalized monolingual competence. It has been a period in which fierce arguments have raged over the question of the relationship of these formal representations to psychological and neurological reality and at the same time, a period in which more linguistic data has been critically scrutinized by trained linguists than in any other comparable period in history. The result has been a quantum leap in our understanding of human language and a door ajar on other exciting questions concerning the human mind.

During the second decade of the "great linguistic awakening," of data sifting and theory building, and newfound interest in bilingualism on the part of some, one

development did not take place. No sustained effort seems to have been made to construct a model of bilingual competence which would serve as a formal point of departure for discussions of many issues central to the study of bilingualism such as its role in promoting or directing linguistic change, though some roughly-conceptualized representations of language interaction in the mind of the bilingual (Swain, 1972) have been published. It is the purpose of this paper to present a restricted, demonstration grammar that purports to represent certain aspects of the competence of a Spanish/English bilingual. As suggested by the title of the paper, this fragment will treat aspects of the phonology of such a grammar.

The premise underlying the work to be presented here is as follows. There are certain items in English and Spanish that are similar, semantically and phonologically, to the extent that they would have to be recognized by anyone who speaks both languages as the "same word." Such a pair is 'biology' and <u>biología</u>. This linguistic knowledge presumably takes the form of 1) a common interlingual lexical item which, phonologically, consists of a compromise representation composed of segmental material drawn from an inventory that is somewhat distinct from that which would be drawn on to represent underlying forms for items posited for a monolingual grammar of either language, and 2) some special phonological rules which reconcile these more than normally abstract lexical representations with their two manifestations, one Spanish and one English.

For the Spanish/English bilingual I assume that these union lexical entries number in the many hundreds and perhaps more.

For purposes of this demonstration grammar I assume an ideal bilingual, one for whom neither the availability of Spanish or English data nor the matter of dominance is an issue. I consider the construction of such a heuristically motivated device a necessary baseline-establishing exercise. I have demonstrated elsewhere (Elerick,1978) that the innovation of gasolín in the Spanish of Spanish/English bilinguals in the United States can be understood as having been the result of the replacement, in the grammar of the speaker who innovated this form, of a lexical representation underlying 'gasoline' and gasolina by one which underlies 'gasoline' and gasolín and that such replacement effects both lexical and derivational economies. It is especially for the purpose of comparing and better understanding innovative aspects of bilingual English and bilingual Spanish that I have constructed and am presenting here this fragment of an optimum bilingual grammar.

Displayed below are forty English/Spanish pairs, together with the putative underlying representation for each. Note that the representations are more fully specified than the lexical representations that derivationally preceed them would be, since the operation of redundancy rules is assumed to have taken place.

The symbols used to represent the underlying segments

reflect, for the most part, conventions that are widely used. The macron is used to indicate a tense vowel, except in 16) /teritōryo/ and 26) /karo/ where it is also used to indicate a trilled non-lateral resonant. The symbols /I E A O U/ represent a series of tense vowels which in English are manifested as [ay iy ey uw aw] respectively. Most readers will recognize this phenomenon as essentially recapitulating the Great Vowel Shift. These segments are always manifested in Spanish as [i e a o u]. In the Spanish derivations the underlying segments will be rewritten by convention since in truth /I E A O U/ simply represent tense vowels that happen to be marked as undergoing a phonological process in English that does not occur in Spanish.

| | | | |
|---|---|---|---|
| 1) | soup | sopa | /sOpa/ |
| 2) | humor | humor | /humor/ |
| 3) | hymn | himno | /himno/ |
| 4) | east | este | /Este/ |
| 5) | fiber | fibra | /fIbra/ |
| 6) | theater | teatro | /θEatro/ |
| 7) | temple | templo | /templo/ |
| 8) | zone | zona | /zona/ |
| 9) | fame | fama | /fAma/ |
| 10) | remedy | remedio | /remedyo/ |
| 11) | tank | tanque | /tanke/ |
| 12) | nation | nación | /nAsyon/ |
| 13) | hammock | hamaca | /hamaka/ |
| 14) | panther | pantera | /panθera/ |

| | | | |
|---|---|---|---|
| 15) | type | tipo | /tIpo/ |
| 16) | territory | territorio | /teřitōryo/ |
| 17) | style | estilo | /stIlo/ |
| 18) | throne | trono | /θrōno/ |
| 19) | rythm | ritmo | /riðmo/ |
| 20) | origen | origen | /ōriɣen/ |
| 21) | liter | litro | /litro/ |
| 22) | glory | gloria | /glōrya/ |
| 23) | gasoline | gasolina | /gasolīna/ |
| 24) | energy | energía | /eneryia/ |
| 25) | portion | porción | /pōrsyon/ |
| 26) | car | carro | /karō/ |
| 27) | blouse | blusa | /blUsa/ |
| 28) | station | estación | /stAsyon/ |
| 29) | spy | espía | /spIa/ |
| 30) | perfume | perfume | /perfūme/ |
| 31) | theme | tema | /θEma/ |
| 32) | total | total | /tōtal/ |
| 33) | use (n.) | uso | /ūso/ |
| 34) | impulse | impulso | /impulso/ |
| 35) | fruit | fruta | /frūta/ |
| 36) | ruin | ruina | /ruina/ |
| 37) | capital | capital | /kapital/ |
| 38) | mule | mula | /mūla/ |
| 39) | hero | heroe | /hEroe/ |
| 40) | debate | debate | /dEbAte/ |

The phonological rules, a set of English rules and a set of Spanish rules, will be presented forthwith. These rules link each underlying representation to its manifested forms, one English and one Spanish. In the interest of ready intellegibility and for the benefit of those readers whose training allows them to follow the general outline of this argument but not formal generative phonological rules, these will be presented in less than rigorous form. The reader is reminded that these rules apply in the following manner. The first rule specifies a rewriting of the underlying representation if the structure of this representation coincides with that set forth in the rule. The resulting representation, either the unchanged form, if the rule does not apply or the form resulting from the application of the first rule if it does apply, is then subject to modification according to the instructions comprising rule 2). Each rule is applied, in order, to the latest representation, the last being the surface form. Some low-level phonetic detail such as the aspiration of unvoiced stops in some environments and the glides that occur with non-low tense vowels in English and relative tenseness of vowels in Spanish is not specified. The mode of analysis and presentation of findings follows essentially that set forth in Chomsky and Halle (1968). The numbers following the rules refer to items affected by each.

## English Phonological Rules

EPh. 1) All final vowels are deleted.

(1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16 17, 18, 19, 21, 22, 23, 24, 26, 27, 29, 30, 31, 33, 34, 35, 36, 38, 39, 40)

EPh. 2) The second of two successive nasal consonants in word final position is deleted.

(3)

EPh. 3) r and r̄ become ɹ (retroflex 'r').

(2, 5, 10, 14, 16, 18, 19, 20, 21, 22, 24, 25, 26, 30, 35, 36, 39)

EPh. 4) A word final sonorant (semi-vowel or resonant consonant) which follows a consonant becomes syllabic. I.e. y→i, n→n̩, etc.

(5, 6, 7, 10, 16, 19, 21, 22)

EPh. 5) A high front oral glide (y) is inserted before a tense high back vowel (ū) when this vowel is word initial, follows h, or any labial or velar consonant.

(2, 33, 38)

EPh. 6) A vowel that preceeds another vowel is tensed.

(36)

EPh. 7) All items are stressed by a complex of rules that will not be presented in this paper.

EPh. 8) a becomes æ in syllables with primary stress.

(11, 14, 23, 37)

EPh. 9) Word final non-low vowels are tensed.

(10, 16, 22, 24, 39)

EPh. 10) Lax vowels in unstressed syllables become ə.

(2, 6, 10, 12, 13, 14, 16, 20, 23, 24, 28, 30, 32, 34, 36, 37)

EPh. 11) A resonant consonant coalesces with a preceding e to form a syllabic resonant of analogous articulation.

(2, 12, 14, 20, 24, 28, 30, 32, 34, 36, 37)

EPh. 12) ɣ becomes j̆.

(20, 24)

EPh. 13) Vowel shift: I→ay, E→ī, A→ē, O→ū, U→aw.

(1, 4, 5, 6, 9, 12, 15, 17, 27, 28, 29, 31, 39, 40)

EPh. 14) e→i before a nasal consonant that is followed by a syllabic segment.

(10, 24)

EPh. 15) sy→s̆

(25, 28)

EPh. 16) n→ŋ before a velar.

(11)

EPh. 17) t→d between two syllabic segments, the second of which does not carry primary stress.

(6, 21, 32, 37)

After presentation of the Spanish rules, exemplary side-by-side derivations which show the effects of the operation of both sets of rules will be offered. Some readers may wish to consult the English derivations at this point.

Spanish Phonological Rules

SPh. 1) r becomes r̄ in word initial position.

(10, 19, 36)

SPh. 2) All instances of h are deleted.

(2, 3, 13)

SPh. 3) All items are stressed by a complex of rules that will not be presented in this paper.

SPh. 4) e is inserted before an initial s which is followed by a consonant.

SPh. 5) u→w before ɾ.

(36)

SPh. 6) All fricatives are devoiced.

(8, 19, 20, 24)

SPh. 7) θ→t.

(6, 14, 18, 19, 24)

SPh. 8) n→ŋ before a velar.

(11)

SPh. 9) All vowels are tensed. I E A O U are rewritten ī, ē, ā, ō, ū, by convention.

The exemplary derivations which follow trace the steps through which the manifested forms proceed from the underlaying representations. Each stage of the derivation is represented and the rule that effects each successive form is indicated. The left hand column traces the English derivation and the right hand the Spanish.

/hūmor/

| | | | |
|---|---|---|---|
| hūmoɹ | (EPh 3) | ūmor | (SPh 2) |
| hyūmoɹ | (EPh 5) | ūmɔ̄r | (SPh 3) |
| hyu̯mɔ̄ɹ | (EPh 7) | ūmɔ̄r | (SPh 9) |
| hyu̯mɑ̄ɹ | (EPh 12) | | |
| hyu̯mɨ | (EPh 13) | | |
| 'humor' | | humor | |

/θEatro/

| | | | |
|---|---|---|---|
| θEatr | (EPh 1) | θEatro | (SPh 3) |
| θEat̪ | (EPh 3) | tEatro | (SPh 7) |
| θEatɻ | (EPh 4) | tēa̍trō | (SPh 9) |
| θÉat̪ | (EPh 7) | | |
| θÉət̪ | (EPh 12) | | |
| θi̍ət̪ | (EPh 13) | | |
| θi̍əd̪ | (EPh 17) | | |

'theater' teatro

/spIa/

| | | | |
|---|---|---|---|
| spÍ | (EPh 1) | spIa | (SPh 3) |
| spI | (EPh 7) | espIa | (SPh 4) |
| spáy | (EPh 13) | ēspi̍ā | (SPh 9) |

'spy' espía

/riðmo/

| | | | |
|---|---|---|---|
| riðm | (EPh 1) | r̄iðmo | (SPh 1) |
| ɹiðm | (EPh 3) | r̄íðmo | (SPh 3) |
| ɹiðm | (EPh 4) | r̄íθmo | (SPh 6) |
| ɹíðm̩ | (EPh 7) | r̄ítmo | (SPh 7) |
| | | r̄i̍tmō | (SPh 9) |

'rhythm' ritmo

/eneryia/

| | | | |
|---|---|---|---|
| eneryi | (EPh 1) | eneryía | (SPh 3) |
| eneɹyi | (EPh 3) | enerxía | (SPh 6) |
| éneɹyi | (EPh 7) | ēnērxi̍ā | (SPh 9) |
| éneɹyi̍ | (EPh 9) | | |
| énəɹyi̍ | (EPh 10) | | |
| énɻyi̍ | (EPh 11) | | |
| énɹji̍ | (EPh 12) | | |
| ínɻji̍ | (EPh 14) | | |

'energy' energía

/ruina/

| | | | |
|---|---|---|---|
| ruin | (EPh 1) | ruina | (SPh 1) |
| ɹuin | (EPh 3) | r̄uína | (SPh 3) |
| ɹūin | (EPh 6) | r̄wína | (SPh 5) |
| ɹů̀ìn | (EPh 7) | r̄wı̀̄nā | (SPh 9) |
| ɹů̀èn | (EPh 10) | | |
| ɹū̀n̓ | (EPh 11) | | |
| 'ruin' | | ruina | |

Some questions regarding the adequacy of this grammar will certainly occur to some readers, aside from the obvious incompleteness of the treatment of the Spanish/English lexicon. One question concerns the advisability of assuming recapitulatory Great Vowel Shift. It should be noted that to posit underlying vowels that have shifted manifestations for a Spanish/English union grammar is a different matter from theorizing Vowel Shift for a monolingual grammar of English. Patent alternations abound in the data on which the first type of grammar is based in contrast to the second. Still, some investigations (Moskowitz, 1973) have found operational evidence supporting synchronic Vowel Shift even in a monolingual grammar of English, although not the SPE formulations (Chomsky and Halle, 1968). The use of the abstract systematic phoneme /ɣ/ may trouble some readers who suscribe to theories of phonology that disallow such constructs. I assume that such abstract segments are available to speakers when they are composed of features that are distributively employed in the specification of other well motivated systematic phonemes, which condition

is met for a Spanish/English intersection grammar. Finally, many will notice that the underlying forms posited here are consistently more Spanish-like than English-like and that accordingly, the English derivations are more complex than the Spanish. This fact does not, in itself, reflect on the validity of the analysis. Spanish just happens to be more conservative, phonologically, than English and to the extent that synchronic rules recapitulate the history of the language, the derivations of items in the former are simpler than those in the latter. These questions of immediate adequacy aside, the grammar fragment presented here is servicable for a large segment of the Spanish/English lexicon with little alteration. The bilingual reader will have no difficulty finding many additional pairs which can be related by using these rules over appropriately-devised underlying representations. However, a study of the lexicons of the two languages will also turn up many other pairs which at first seem amenable to this type of treatment but which involve problems that have not been dealt with here. Below is a brief survey of these problems.

Some word-final vowels must be treated as special. Most pairs support English word-final vowel deletion ('tribe'/tribu; 'pole'/polo) but some English forms retain the vowel ('radio'/radio; 'menu'/menú) while others delete both the final vowel and the preceeding semi-vowel ('abundance'/abundancia; 'bible'/biblia). In order to handle such pairs the grammar will have to be complicated to a not inconsequential extent.

Some pairs seem relatable but with ever increasing abstractness in the underlying representation. The constant question of how much abstractness to allow is at issue in positing /botelya/ for 'bottle'/botella and /egzæmplo/ for 'example'/ejemplo.

Some pairs are phonologically relatable but are slightly skewed, semantically. Such is the case for 'frontier'/frontera ('national boundary') which otherwise would be simply /frontEra/ and 'stranger'/estranjero ('foreigner') which would have the underlying form /strAnyero/, both leading to the appropriate surface forms via the rules supplied above. Should we assume that intersection grammars include special semantic extension, adjustment and limitation rules?

There are derivational complexes in the two languages that suggest complication of the union grammar. Such a case is 'electric'/'electricity'/ /elέctrico/electricidad. It is not at all clear how this phenomenon should be handled or what the implications for bilingual grammars are.

The ideas and analysis presented in this paper obviously reflect a line of investigation still in its infancy. In addition to the specific issues I have just skimmed over there remain broader questions which must be posed. Are there other situations in which bilingualism promotes the internalization of union grammars? This might well be the case wherever two closely related languages or two languages, one of which has undergone extensive cognate relexification, the case of English vis-à-vis Spanish, are in contact. How well, at all, does a grammar of the sort presented here reflect neurological com-

petence? Does such an abstract approach have applications to pedagogy?

Mindfull of the pitfalls, or at least some of them, I have presented this material in the hope that others will be stimulated to examine and question the general concept and specific findings and begin to elaborate more ambitious and more finely tuned models of bilingual competence.

## Bibliography

Chomsky, N. and M. Halle, The Sound Pattern of English. New York: Harper and Row, 1968.

Elerick, Charles, "The Bilingual Lexicon and Linguistic Innovation," Approaches to the Romance Lexicon, Frank Nuessell, Jr., ed. Washington: Georgetown University Press, 1978.

Moskowitz, B.A., "On the Status of Vowel Shift in English," Cognitive Development and the Acquisition of Language, Timothy E. Moore, ed. New York: Academic Press, 1973.

Swain, Merrill, Bilingualism as a First Language, Doctoral Dissertation, University of California, Irvine, 1972.